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# (12) United States Patent Smith et al.

# (54) FZ SEED HOLDER AND PRE-HEATER

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CPC .............. *C30B 13/285* (2013.01); *Y10S 117/911* (2013.01); *Y10T 117/1076* (2015.01)

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See application file for complete search history.

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## (57) ABSTRACT

The device of according to the present invention is a device for holding a single crystal silicon seed. The device or holder contains a plurality of strips to clamp a seed crystal in the seed crystal holder; and a base supporting the plurality of strips. The plurality of strips each has a free end which contacts a single crystal silicon seed and an end opposite the free end which joins the base and becomes integral therewith. The plurality of strips are bent or folded in such that they exert pressure on a seed crystal when the seed crystal is inserted among the plurality of strips.

#### 9 Claims, 6 Drawing Sheets

